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Planning peri-urban areas at regional level: The experience of Lombardy and Emilia-Romagna

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Abstract

This paper describes the measures adopted by Lombardy and Emilia-Romagna (two Italian regions) for planning their peri-urban areas at regional level. Peri-urban territories merge urban and rural features and extend beyond the municipal administrative boundaries. This prevents their precise delimitation, as well as the adoption of municipal plans for their governance coherent with its spatial, economic and social development. As consequence, many municipal authorities do not reserve consistent attention to these territories and adopt territorial plans based only on urban-rural dichotomy or land-use micro-transformations. Since their jurisdiction extends to supra-municipal level, the regions could play a decisive role in peri-urban governance. This is the case of Lombardy and Emilia-Romagna regions, which are some of the few regions in Italy to have elaborated specific legislative and planning documents in order to promote the spatial urban-rural equilibrium in the urban fringes. As demonstrated at the end of a document analysis concerning spatial planning laws and plans, both regions experiment specific measures for the agro-environmental balance and urban regeneration in peri-urban areas, but they do not delimit them spatially or adopt specific measures for their governance. Further, they do not jointly regulate or plan the urban macro-region that extends across their regional territories, from Varese (North Lombardy) to Rimini and Ravenna (South-East Emilia-Romagna), resulting from the merger of their peri-urban areas.

Keywords: Peri-urban territories, peri-urban mapping, urban-rural linkages; Lombardy, Emilia-Romagna, peri-urban governance

JEL: R01

Introduction

Over the last decades, urbanization has been increased rapidly (UN, 2015). In 1970 about 34% of European population lived in urban areas. About 40 years later, three quarters of Europeans populate these areas: 42% of them lives in the cities and the remaining 31% resides in towns and suburbs (ibid.). Due to this demographic growth, urban areas have expanded converting the nearby agricultural spaces for residential uses. This has generated peri-urban territories, which merge urban and rural features and include different types of landscapes, such as agricultural spaces, consolidated and dispersed urban built-up areas. These territories extend beyond the urban administrative boundaries and cover several close municipalities (Benni et al. 2008; Marshall, 2008; Cattivelli, 2012a; Donadieu 2012; Hoggart, 2016). Their spatial patterns and processes of urban land change reflect urban-rural flows intensity (commuting, migration, relocation of companies) (Piorr and Ravetz, 2011; Cattivelli, 2012b) and occur within specific spatial planning systems, governance scales and multi-actor dynamics which are affected by recent transformations (crisis of core-periphery model, review of competences among institutions, changes in the prerogatives of public intervention in the field of planning, variety of local stakeholders) (Mazzocchi et al. 2014). Differences in institutional frames of territorial governance can explain variances in peri-urban patterns (Servillo and Van den Broeck, 2012). For the time being, the governance of peri-urban areas is rarely included in regulations and plans. Some prescriptions are included in municipal plans. Being based on urban-rural dichotomy, these plans regulate just the urban and

rural areas and ignore the continuum within them or the specificity of some of their parts. Besides they refer just to the administrated territories and do not promote any interrelated institutional settings to regulate the relations among neighbouring ones.

As such, peri-urban governance cannot be directly attributed to municipalities. Efforts are hence needed to clarify how the gap between governance and peri-urban patterns can be bridged and what institutions are more qualified to resolve it. Differences in how regulation and spatial planning driving forces act at higher level, the regional one, should be a particular focus. As Pagliarin revealed (2018), suburban regulation performs better at regional level.

Lombardy and Emilia-Romagna are two strongly urbanized Italian regions, where there are two important metropolitan areas (Milano and Bologna) around which there is an interconnected network of small and medium-sized cities. Here, urban extension has converted large rural areas around the urban fringes into peri-urban ones (ISPRA, 2019). Specifically, in Milano and Bologna metropolitan areas, demographic growth and the re-location of economic activities have pushed the urban expansion beyond their extremes fringes, generating peri-urban settlements. These settlements extend beyond metropolitan boundaries and cover territories included in other provinces. Empty spaces between them are partly filled with further urban interventions (densification of settlements or creation of connecting infrastructures) or agro-environmental rebalancing measures (farm protection measures or urban gardening). The manifold small and medium-size cities that insist in both regions have also affected by urbanization, which have impinged the conversion of rural areas in peri-urban fringes and generated a peri-urban multi-polarized continuum, one in Lombardy and one in Emilia-Romagna. Recently, due to the incessant urbanization, these two continuum have been approaching and tend to join together. This generates a large urban and peri-urban macro-region that extends from Varese (Lombardy) to Rimini and Ravenna (Emilia-Romagna).

All these territorial transformations are governed through the adoption of regional laws and plans. These acts promote spatial urban-rural equilibrium and include specific measures for the agro-environmental balance and urban regeneration in the urban fringes. Unlike other regions, Lombardy and Emilia-Romagna have experimented more accurate spatial delimitations of their regional territory and defined those territories with different degrees of urbanity, like the peri-urban ones. They provide also for measures to make effective the participation of institutional actors and local stakeholders, albeit with some difficulties. What further deserve detail is also the extension of the urban and peri-urban macro-region across both regional territories, which at the moment is not legally regulated or planned.

This article compares governance processes of peri-urban areas at regional level in Lombardy and Emilia-Romagna and investigates how governance dynamics, regulatory and spatial planning factors at regional level are potentially adequate to regulate the observed patterns of peri-urban development.

From a governance perspective, it investigates the practical issues arising from different peri-urban delimitation, forms of governance, and potential collaboration and conflicts when planning control shifts to more cooperative than singular institution. The paper also addresses the supportive role (and the constraints) of local authorities and private actors in facilitating the adoption of alternative governance models that can give rise to the transition towards innovative forms of regulation and planning of the peri-urban and urban macro-region.

As such, its research questions are:

- Do Lombardy and Emilia-Romagna define peri-urban areas in their regional laws and plans?
- How do these regions govern peri-urban areas? What prescriptions are contained in the above-mentioned documents?
- Do these regions promote the governance of the urban and peri-urban macro-region that extend across both their territories by adopting concerted decisions and policies?

The important contribution of this research is the evidence that a stronger governance and planning role played by the regional government can be effective for peri-urban development and containment.

The paper is structured as follows. The second paragraph sets out some of the most significant theories developed to describe the peri-urban areas characteristics and evolution. The third one includes some findings of the recent debate on the governance of these territories. The fourth one describes the method of the investigation and the reasons for choosing Lombardy and Emilia-Romagna as case studies. The next

paragraph briefly describes the urbanization process in Lombardy and the choices made by the region in terms of identification and governance of peri-urban areas. The fifth paragraph is similarly structured, but it concerns Emilia-Romagna. The sixth section discusses the results of the investigation, while the last one concludes suggesting future indications of governance.

2. Some insights on characteristics and evolution of peri-urban areas

Peri-urban areas are not suburbs, but a “third space” (*tiers espace*) and an interconnected *continuum* (Camagni, 1994) between urban and rural areas and beyond administrative boundaries (laquinta and Drescher, 2000; Rauws, de Roo, 2011; Qvistrom, 2013; Hoggart, 2016; Wandl and Magoni, 2017).

Peri-urban landscape contains a wide variety of land uses, which is expressed in a highly fragmented productive and residential agglomerations connected together with more or less dense infrastructural networks and separated by empty agricultural spaces or residual ones (Socco, 2007; Schwarz, 2010; Dubbeling, 2011, Wandl et al. 2014). This structure reflects a low population density and new inhabitants’ (pensioners, families and migrants) preferences for a housing model based on housing-family property (Dekkers, 2010). It is economically integrated with those of the neighbouring urban areas (Glaeser, 2011; Cattivelli, 2012a), assuming significance as places for relocated firms and interlinkages with infrastructural hubs. However, distance from the urban centre deprives progressively peri-urban from urbanization economies (Cattivelli, 2012b).

Earlier views considered peri-urban areas as a result of the urbanization process, which starts from the growing urban centres and affects the countryside in concentric spheres of differentiated influence (Antrop, 2004). During the first phase of this process, demographic growth affects urban centres as population moves here, after migrating from rural areas. In the second one, it affects the whole urban agglomeration, as the increased congestion costs in urban areas push population to move to the urban peripheries. Afterwards, during the subsequent counter-urbanization, both urban centres and fringes lost population. The last phase, the reurbanization phase, reverses this trend (Champion, 2001). Meanwhile, the centrifugal force causes an explosion of urban areas in the adjacent fringes that convert rural areas to urban uses, generating peri-urban areas. This conversion usually follows different spatial patterns; the most recurrent consists in spill-over or leapfrog in dense urban developments to low-density and scattered buildings within agricultural areas (Altes, 2009; Gosnell et al. 2011). Shortly afterwards, the centripetal force partially fills the vacant spaces among the new peri-urban settlements (Caruso et al. 2007; Fujita and Thisse, 2009; Netto et al. 2017). This means that in the first phases, peri-urban extension depends on the demographic growth, while in the last ones, it conversely reflects the spatial reorganization of the population.

However, urbanization is not a linear process: deviations from the above-described paths are possible and also affect small towns beyond urban fringes.

The concept of differential urbanization (Geyer and Kontuly, 1993) is very significant for understanding the consequences of the intense urbanization of a large city on neighbouring areas. According to this process, concentration and de-concentration of population in larger urban areas are the result of a sort of wave that first affects the major cities and consequently spreads towards smaller towns and settlements. McGee’s theories (1991; 2009) partially confirmed these trends. Accordingly, metropolitan and large urban areas grow rapidly and extend beyond the urban fringes. This expansion creates a polycentric model where urban and rural activities equally insist, generating new territories. Traditional urban-rural dichotomy is no longer useful to describe these territorial transformations and new territorial categories are identified as extremes, such as the major cities, the densely populated rural regions and the sparsely populated frontier regions. Within the continuum among these extremes, and thus to identify the peri-urban areas, two additional categories are introduced, such as the *desakota* regions and the peri-urban regions. *Desakota* regions are situated in the extended surroundings of large cities, in which urban is expanding into rural areas often referred to as the rural-urban fringe. They are outside the peri-urban zones, from which daily commuting is easily possible, i.e., more than 30 or 50 km off the city centre. Peri-urban in fact surrounds the cities including the large city core and smaller town centres.

Several views investigate other drivers of these spatial patterns. Demographic dynamics remain the main driver and the most debated one (e.g., Carlucci et al. 2018; Salvati et al. 2019). However, other factors are

considered equally important: urban migration (Lauf et al. 2012), agricultural intensification (van Vliet, 2015), commuting and investments in infrastructure (Vobecka, 2010; Accetturo, 2018), industrialization and changing localization preferences for specific production functions, like distribution centres, waste treatment infrastructures, amenities (Rovai et al. 2014) and different people's preferences for living, housing dispersion and residential market trend (Plantinga et al. 2013).

3. The governance of peri-urban areas

The governance of peri-urban areas has received increasing attention by planning and policy making at regional level in Italy, especially over the last two decades (Bengston et al. 2004; Daniels and Lapping, 2005; Ekers et al. 2012).

Decentralization of competences in planning decision, as well as jurisdictional ambiguity drive articulated governance challenges concerning the allocation of competences and responsibilities. Inspired by the European principle of subsidiarity, national governments define the general framework and delegate responsibility for regulation and spatial planning to regional and local authorities (provinces and municipalities). These lower-level administrations adopt spatial measures in relation to the territories they manage; as such, they specifically govern the part of peri-urban areas that extend inside their administrative boundaries. However, peri-urban boundaries are blurred and extend beyond administrative jurisdictions (Phelps and Wood, 2011). Cooperation agreements with other close institutions that insist for the implementation of trans-territorial projects or plans and regulations in the same areas are rare (Marshall et al. 2009).

Decentralization also promotes the participation of local stakeholders in territorial decision-making. According to Beunen et al., governance is in fact considered „the taking of collectively binding decisions for a community in a community, by governmental and other actors“ (2015:20). This implies the shift in decision making to other stakeholders in peri-urban areas, in addition to the governmental institutions. The list of other stakeholders includes all institutions in charge of managing the territories within which the peri-urban areas extend, private citizens and associations, but also new actors such as urban middle-class commuters, small urban farmers or industrial entrepreneurs which are emerging with their specific instances and needs. The rapidity of this transition towards their full inclusion in the decision-making process depends on two factors (Ubels et al. 2019). First, the readiness and preparedness of local governments to shift decision-making roles with citizens proved to be of main influence on governance change. Second, local residents' commitment importantly affected the progress of the experiments, while social cohesion and tangible outputs strongly influence the extent and continuity of such commitment. Possible risks associated to the stakeholders' participation exist and consist in time scale coordination, vertical coordination among multiple actors and public decision levels, spatial coordination, as well as persistence of antagonist interests (Rey-Valette et al. 2014; Artmann, 2014; Holtslag-Broekhof et al. 2014).

Risks also concern the choice of peri-urban governance objectives. Here, tensions between urban settlement expansion and changing land-use, as well as the conservation of environmental amenities and socio-ecological systems require an urgent solution. Existing social and economic contradictions open a new understanding of private land appropriation, real-estate speculation, and marginalization/inclusion of certain social groups. This prevents the definition of appropriate criteria for the environmental and social assessment of peri-urban areas and the re-equilibrium between urban and rural areas (Phelps et al. 2010; Perrin et al. 2018).

The choice of which measures should be adopted is equally vibrant (Cerrada-Serra et al. 2018). Technical aspects of spatial planning (e.g. regulations and plans' objectives) are merged with socio-political dimensions (e.g. specific actors and groups' practices and their governance dynamics) at different territorial scales. Territorial governance is generally based on a legislative and on a planning approach, ordered in sequence. Firstly, regions adopt specific territorial laws. With them, they define the criteria for territorial zoning and the competences of all governing institutions involved in territorial management issues. Secondly, based on these legal requirements, provincial and municipal institutions elaborate specific territorial plans referred to their administered territory. These plans embrace over-stringent height restrictions to the edification of a compact city (OECD, 2018). They tend to exclude certain activities in compact cities and plan them in

peripheries, especially those with a supra-local importance like production and commercial plants or hospitality and entertainment activities. Included prescriptions also define local urban and construction regulations, particularly in the inner and consolidated urban areas (Moroni et al. 2018; Moroni and Minola, 2019). Decisions about taxation on real estate are also included. Local institutions indiscriminately increase these taxes in order to raise revenues. In this way, they incentivize horizontal urban development through the conversion of poorly evaluated agricultural lands to more profitable urban ones rather than the vertical development of the existing buildings (McGill and Plimmer, 2004; Pagliarin, 2018).

Prescriptions are also informed to a general approach, as they referred to the entire administrated territory. However, these acts could also refer to different territorial fields (rural, regional and urban) as argued by Allen (2003). Adopting a rural planning perspective, these acts focus on localized and discrete actions. If regional-oriented, they try to regulate rural–urban pressures and flows. Finally, acts with urban perspective seek the transformation of planning systems and their allied institutions. The peri-urban field of planning does not exist as a specific category of territorial fields and regions merge the above-described approaches differently according to the specific characteristics of their territories.

4. Methods

4.1 Data and documents

Soil consumption data (2019), demographic census data (1971-2011 and 2019), commuting data (2011) and administrative boundaries (2013 and 2018) are used to map peri-urban development and their drivers (demographic dynamics, soil consumption and economic relations). These data have been combined with document analysis of spatial planning regulations and plans (Table 1) in order to analyse regional practices of peri-urban delimitation and management.

Table 1. List of laws and plans considered in the present study.

Region	Type of document	Document
Lombardy	Regional law	Legge regionale 12/2005
Lombardy	Regional plans	Piano territoriale regionale (PTR) e Piano territoriale regionale di area (PTRA)
Emilia-Romagna	Regional law	Legge regionale n.24/2017
Emilia-Romagna	Regional plan	Piano territoriale regionale (PTR)

Source: own elaboration, 2019

4.2 Case selection

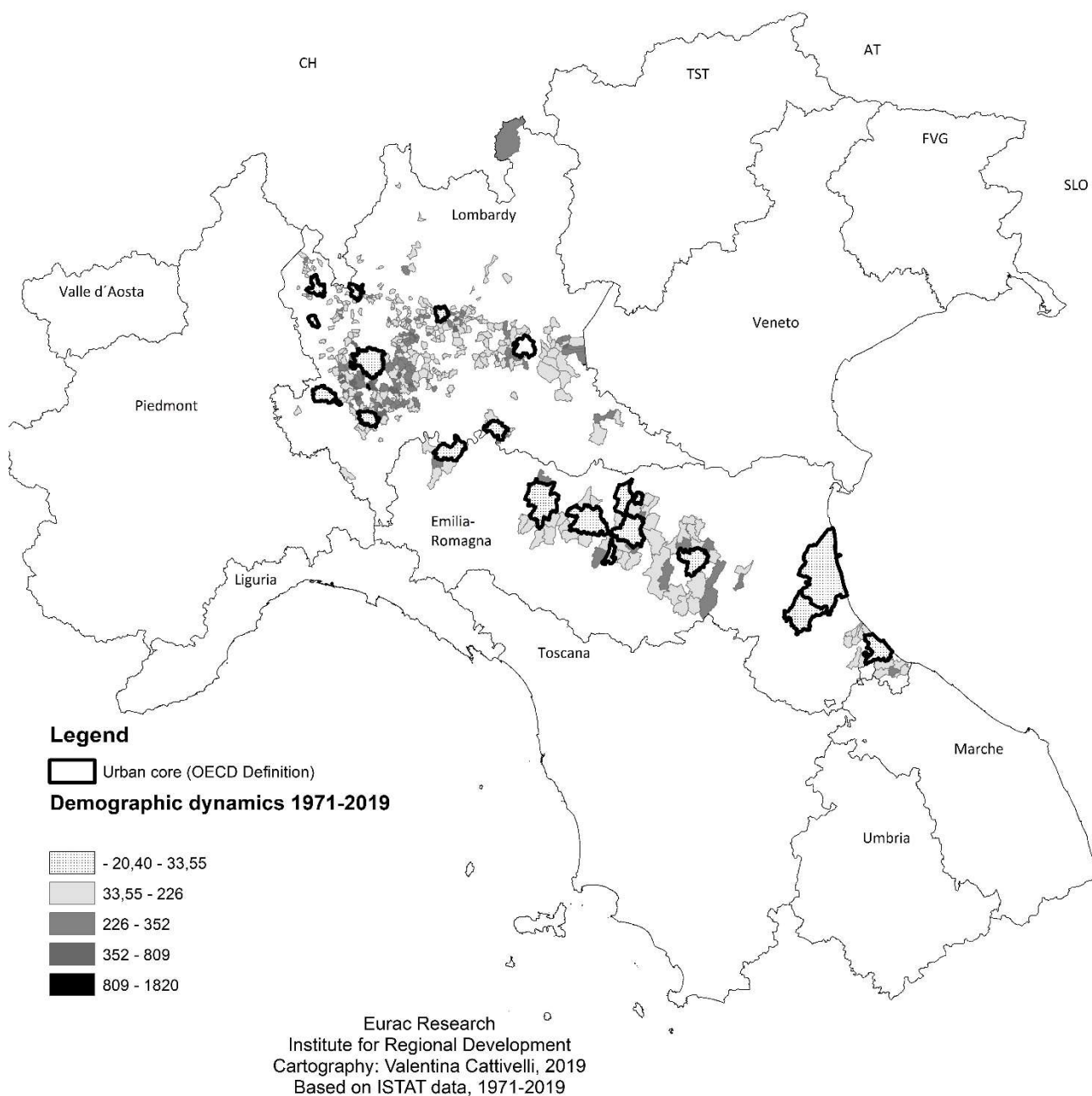
Lombardy and Emilia-Romagna are chosen for comparison because they present similar urban and peri-urban patterns, as well as institutional similarities.

Both regions have an urban structure centred on two large metropolitan areas (Milan and Bologna) and a network of medium-small size cities, densely populated. The centrifugal force leads all these centres to expand inside, to promote the requalification of empty spaces or to fill those created within the peripheral infrastructural networks. The centripetal force favours the joining of urban fringes also those belonging to areas administrated by different institutions, in municipalities close to major urban centres. The combination of both forces leads to the reduction of rurality in the peripheral areas and to the transformation of fringes into peri-urban areas, across several near municipalities.

This result reflects the recent demographic dynamics. Both regions have experienced substantial population growth. Between 1971 and 2019, 1,000 municipalities (out 8,000 in Italy) have grown by more than 163%. Of

these municipalities, 348 are in Lombardy and 63 in Emilia-Romagna, respectively. These 411 municipalities have less than 19,000 and about 90% of them less than 5,000 inhabitants. Figure 1 demonstrates the territorial distribution of these municipalities and underlines a shift of part of the urban population going on: to smaller municipalities on the one hand, or to the countryside on the other hand, which is becoming increasingly urbanized, thus influencing the expansion of peri-urban areas around the most important urban centres (Esposito et al. 2018; Caracciolo, 2018). On the contrary, population growth has been contained in the most important neighbouring urban centres and for some of them negative.

Figure 1. Municipalities with a demographic growth more than 160% in the period 1971-2019 in Lombardy and Emilia-Romagna (% values)

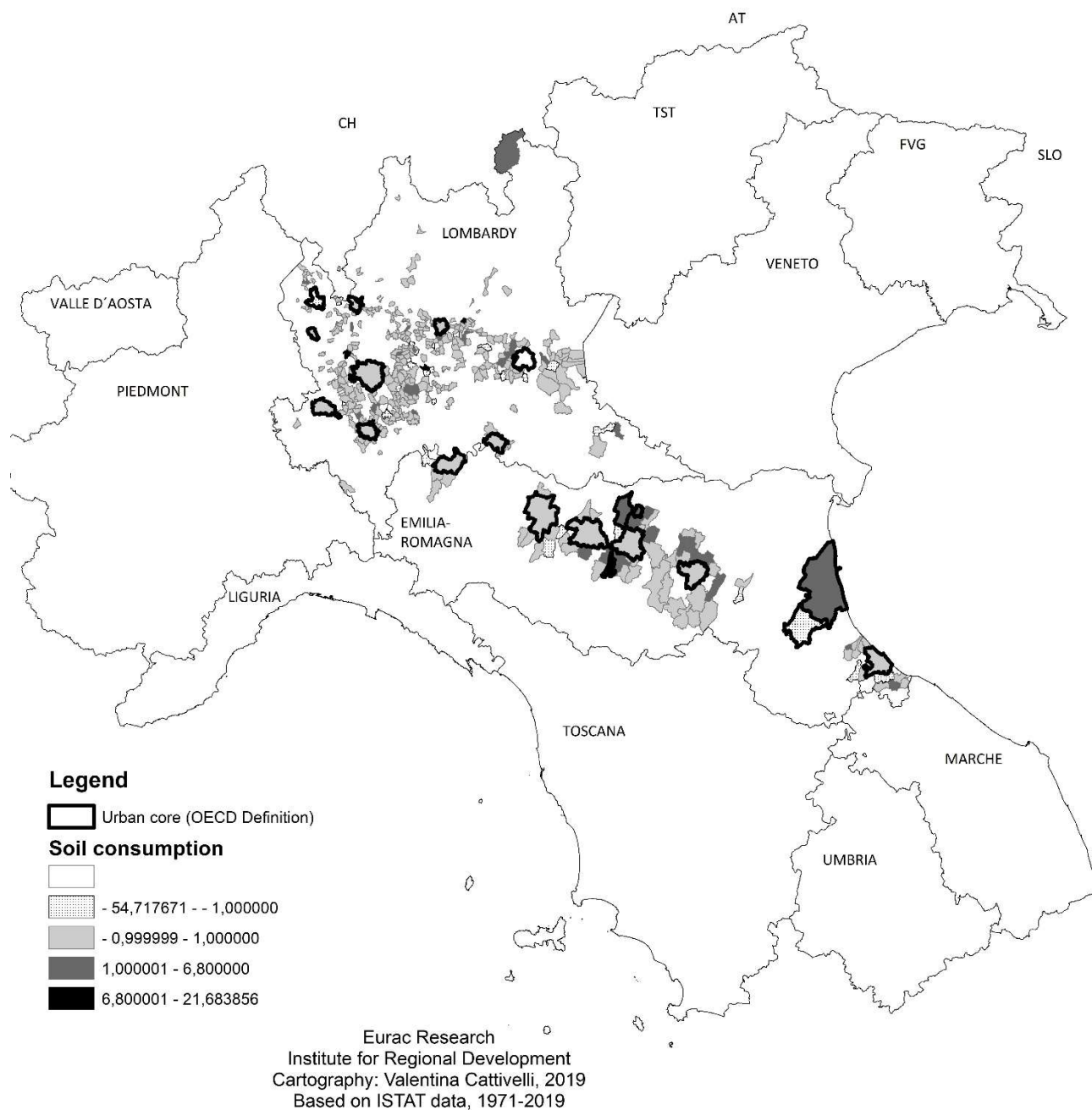


Source: own elaboration on ISTAT data, 1971- 2019

Both urban structures reflect also the effects of the spatial reorganization of the population in municipalities close to urban centres. Considering specifically the relation between demographic growth and soil consumption, urbanization process appears less linear than the theoretical model (Figure 2). This emerges as some urban centres have grown even in the presence of stabilization, and in some cases of decline, of the resident population. Data related to the ratio of land consumption rate to population growth rate from 2012 to 2018 confirm these trends (ISPRA, 2019)¹. It should be noted that most of the municipalities that have experienced significant population growth have had an equally significant increase in land use. However, about of 84% of the considered municipalities the rate of change in land consumption is lower than the rate of change in the population. This means that population is not excessively dispersed in the municipal territories or land conversion is less rapid than the demographic growth.

Figure 2. Municipalities with a demographic growth more than 160% in the period 1971-2019 in Lombardy and Emilia-Romagna (% values) and their soil consumption.

¹ This ratio is elaborated within the studies concerning the Sustainable Development Goals by United Nations. It correlates the change in land use with the rate of change in the population. If the indicator is between 0 and |1| the rate of change in soil consumption is lower than the rate of change in the population; if it is 0 the consumption does not change. Alternatively, if the indicator is higher than |1| the rate of change in soil consumption is higher than the rate of change in the population. Finally, if it is infinite the population does not change but the consumption does.

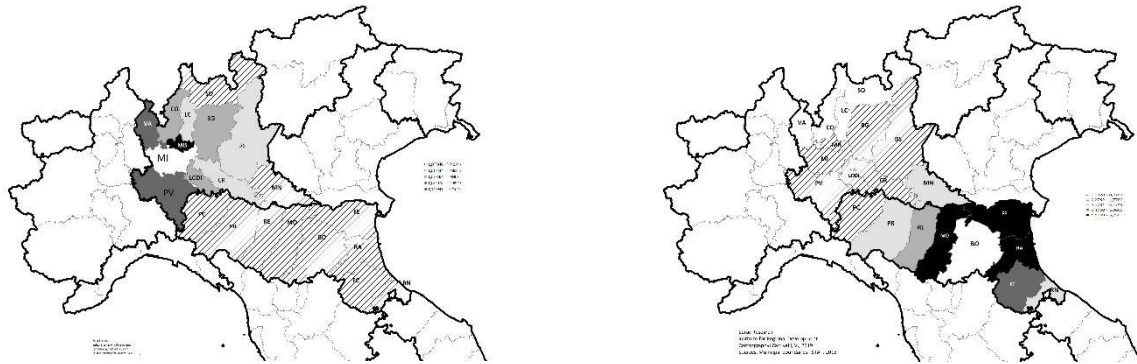


Source: own elaboration on ISTAT data, 1971- 2019; ISPRA, 2019.

Lombard and Emilian medium-small size cities and their relative surroundings are then characterized by intense social and economic relations that could be proxied by commuting flows.

According to ISTAT (2011), every day about 365,000 inhabitants commute to the Milan local labour system for work and study purposes. Of this, about 97% comes from one of the considered Lombard and Emilia-Romagna provinces. For the same reasons, almost a million and a half people move within these provinces. In Bologna 51,000 people move daily to its local system and this represents about 91% of total in-flows commuters; just under 500,000 move within it. The following figures demonstrate the share of daily commuters towards Milan (Figure 3, on the left) and Bologna (Figure 4, on the right) for work and study purposes, starting from one of the provinces located in the same region and in the other region considered.

Figure 3-4. Share of commuters to Milan (on the left) and to Bologna (on the right) from Lombard and Emilia-Romagna provinces



Source: own elaboration on ISTAT data 2011, 2019

In the map, the acronym of provinces: BG-Bergamo, BS-Brescia, CO-Como, CR-Cremona, LC-Lecco, LO-Lodi, MN-Mantova, MI-Milano, MB-Monza e Brianza, PV-Pavia, SO-Sondrio, VA-Varese, BO-Bologna, FE-Ferrara, FC-Ferri Cesena, MO-Modena, PR-Parma, PC-Piacenza, RA-Ravenna, RE-Reggio Emilia, RN-Rimini

Combining demographic dynamics data and commuting flows, as studied by OECD (2013)², at municipal level, Lombard and Emilia urban structures are redesigned regardless of administrative division. This enables to identify the urban centres (the urban cores) and their relative area of influence (the hinterland) on the basis of spatial, economic and social relations. Figure 5 demonstrates this new geography, which approximates municipalities in the hinterland as part of the peri-urban areas.

Figure 5. Focus on urban and peri-urban macro-region that extends in Lombardy and Emilia-Romagna

Source: own elaboration OECD data 2013

²The OECD method for the identification of FUA (OECD, 2013) is applied to LAU2 (municipal level) and is based on two variables: the population density and the travel-to-work flows. Accordingly, municipalities are divided into two categories, “the core area” and the “hinterland”. The core area is made up by municipalities with the highest population density and commuters’ in-flows; hinterland includes the close municipalities with less density and commuter attractiveness but linked by social and economic relations to the nearest core.

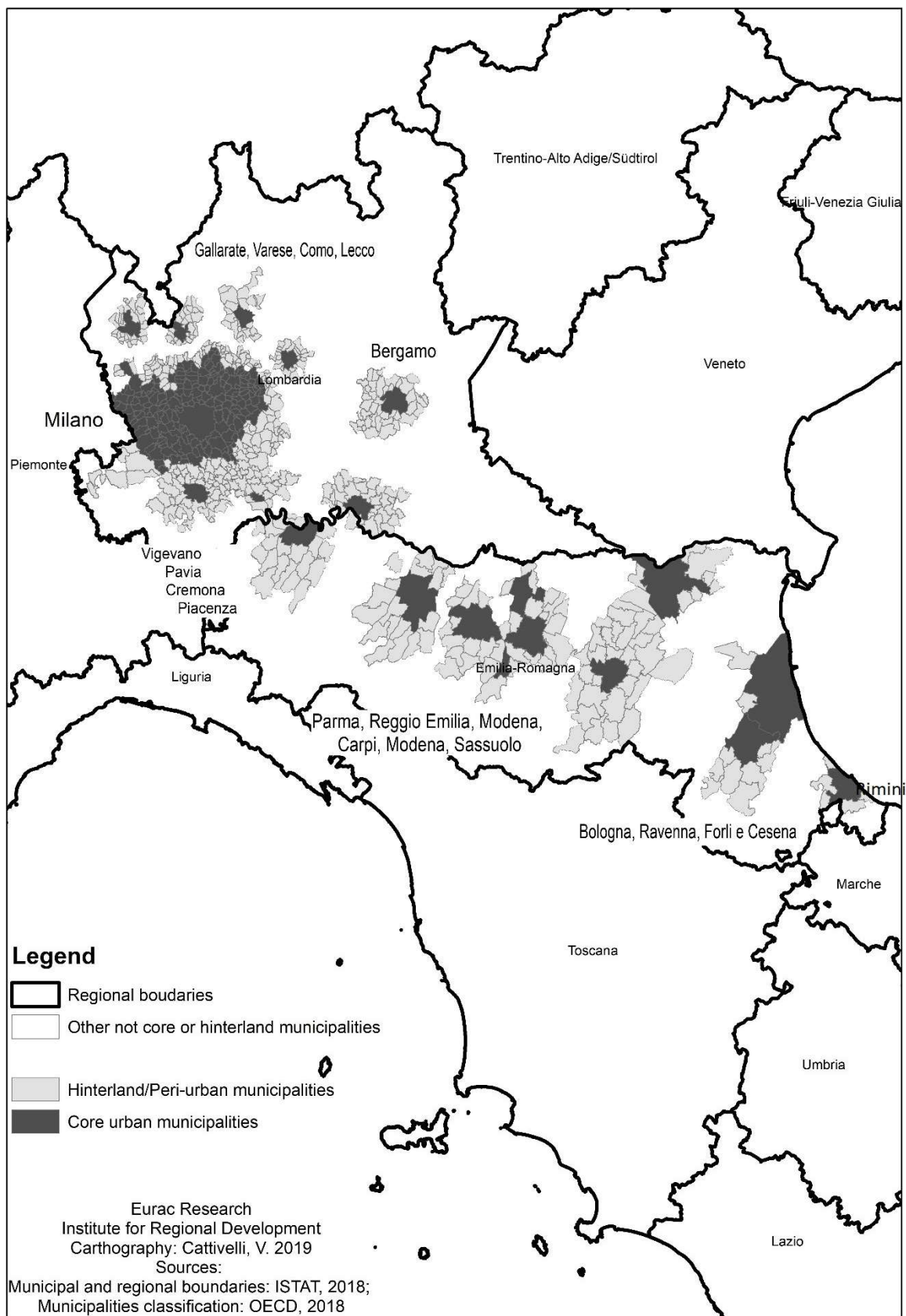
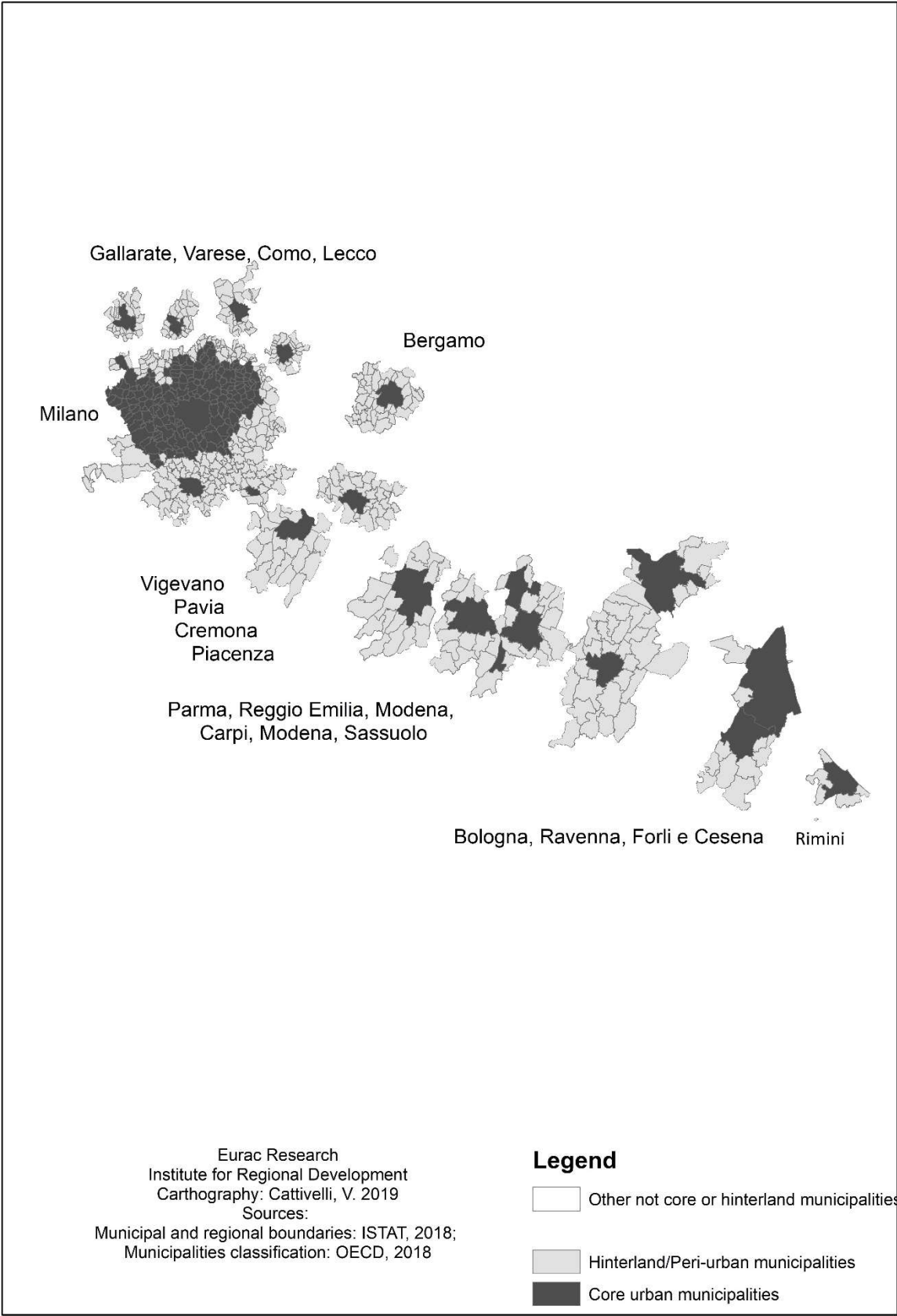


Figure 6. Detail on considered urban and peri-urban macro-region



This map demonstrates an interesting effect of the urbanization process that currently affects both regions that is the creation of a sort of urban and peri-urban macro-region between Varese (the northernmost and westernmost city in Lombardy) and Rimini (the one further east and south in Emilia-Romagna). This happens as peri-urban areas of all small-medium cities extend and tend to contract and merge. This macro-region is the largest in Italy³ and has strong relations with some neighbouring regions such as Piedmont and Veneto, which are also highly urbanized and peri-urbanized. Finally, the peri-urbanization of the whole area depends on agricultural intensification, changed preferences for industries and family's localization (ISTAT, 2019).

The governance of urbanization process is informed to a hierarchical planning procedure at different spatial/administrative levels in both regions (Romano et al. 2018). The allocation of regulatory competences among different institutional stakeholders reflects the decline of the top-down model as a road map for the organization of all levels of government. In accordance with this allocation, central government introduces general planning principles at regional and municipal level. Legislative activities in the urban planning are delegated to the regions. Regional administrations are co-responsible for the legal framework of spatial planning and directly responsible for their implementation at regional level. At the same time, regions adopt their own planning tools, promote coordination with lower-level government institutions (provinces and municipalities), and determine the competences of these entities and the general guidelines of the planning documents they adopt. These regional and sub-regional plans allow to govern the territorial transformations with greater flexibility and adaptability and to actively involve with citizens (horizontal subsidiarity). Although very intensive over time, this governmental activity was characterized by strong heterogeneity and weak strategic regulation, thus easing forms of control and increasingly delegating decision-making to municipalities, even small and resource-poor ones (Colavitti et al. 2012). Concerning their topics, regional plans support urban growth and land rent tools, as they include provisions on land use, incentives for urbanization, and few instruments for the protection of natural and rural areas.

5. Analysis and findings

5.1 Peri-urban governance in Lombardy

Lombardy region does not define or delimit peri-urban areas. It prefers delegating their delimitation to provinces and municipalities. Without any regional specifications about the general characteristics of peri-urban areas or their extension, each local administration adopts the definition it assumed more coherent with the administrated territory. Normally, they define peri-urban areas as free-standing areas outside the consolidated urban fabric and with some dispersed agricultural fringes within the municipal boundaries. For their governance, they respect the general principles of spatial planning and governance defined legislatively at regional level.

The regional Law n.12/2005 is in fact the cornerstone of territorial governance, as it defines the legislative framework within which provinces and municipalities assume their own decisions for the administrated territories. This law informs decision-making processes to the principles of subsidiarity, responsibility, partnership and transparency and defines the guidelines for lower-level government institutions. Its prescriptions are defined on the basis of a regional-oriented approach which is valid for the whole regional territory, without a clear-cut distinction among urban, rural and peri-urban areas.

They include measures to promote the reduction of land consumption and the urban regeneration of already urbanized, degraded or disused areas, as a set of penalties or the financing of measures to rebalance environmental and ecological equilibrium with the revenues derived from land transformations. Prescriptions stimulate also territorial cooperation among several institutions and actors that insist on regional territory; however, they do not define exactly the operative ways by which these operators can cooperate concretely.

³ There are other macro-regions in Italy: one extends between Tuscany, Umbria and Lazio and the southernmost one that includes Molise, Basilicata and Puglia. However, these two macro-regions will be considered in subsequent studies.

Some of them are then transposed in *Piano Territoriale Regionale* (Regional Territorial Plan, PTR). This plan considers the fringe areas around urban and peri-urban landscapes in order to delimit the conurbation explosion in surrounding rural centres. Specifically, as it recognizes the considerable urban pressures on local environment and agricultural ecosystems, the PTR focuses on the regulation of the urban development including measures for protecting the ecological-naturalistic vocation and quality of green and agricultural areas located in urban fringes. This plan also promotes here the responsible use of soil and the minimization of its consumption as well as the requalification of disused and degraded areas.

Apart from contributing to the rebalancing of ecosystems and environment, PTR also reserves specific attention to the role of agriculture in reducing land consumption reduction and in providing services in areas close to the city (tourism and social farming for example).

Although it refers to the entire regional territory, the PTR identifies specific strategic goals for the regional metropolitan system, specifically the one that extends into the central part of the region. Like the regional law, it does not include any definition of peri-urban areas. Conversely, it defines the peri-urban farming area, comprising agricultural areas which are at the edge of urban areas and protected by specific regulations against edification.

As peri-urban transformations extend beyond administrative boundaries and interest different adjacent municipalities, the Region has recently adopted an additional strategic territorial plan, the *Piano territoriale regionale di Area* (Regional territorial plans for areas, PTRA), which includes PTR principles and functionally designed interventions for governance at multi-provincial or multi-municipal level.

This plan is based on a multilevel governance logic and adopts a multisector approach. During its adoption and implementation, PTRA provides for the active and continuous participation of all regional stakeholders and the sharing of strategies, objectives and actions. Both plans, PTRA and PTR merge differently the features of Allen's field of planning.

Based on this legislation and planning prescriptions, provinces and municipalities directly administrate their territories considering their characteristics and the needs of its inhabitants. Accordingly, they draw up some territorial plans, respectively, the *Piano Territoriale di Coordinamento Provinciale* (Territorial plan of provincial coordination, PTCP) and *Piano di Governo del Territorio* (Territorial Governmental Plan, PGT).

These plans generally include height restrictions, but not horizontal limitations. This prevents a more efficient densification of already urbanized spaces and opens the possibility for further urbanization of rural areas. Plans include precise indications concerning territorial zoning: economic and land functions are clearly delimited within municipal boundaries. Procedures do not include stringent hurdles and penalties for changes in designated uses. However, the largest municipalities promote forms of urban reuse or regeneration, also covering the vacant areas by agricultural and recreational spaces, urban gardens. Generally, their plans do not include any reference to the infrastructural interventions to connect peri-urban settlements as the relative provisions are included in sectoral plans like transport or public work. Decisions on taxation are in line with regional and national legislation. However, their (high) amount has encouraged municipalities to convert agricultural areas into residential and productive ones; part of them are destined for environmental recovery.

Municipalities are encouraged to collaborate and to invite local stakeholders to their debate on territorial issues. This collaboration materializes through roundtables with provinces, municipalities, organizations of municipalities and provinces, as well as with transnational and transregional tables with bordering regions and cantons, associations and professional orders. Recently, specific working groups have been organized with specific focus on some territorial systems (as mountain, lakes, Po river land, etc.). Some years ago, one launched a virtual forum on the regional website which is open to all citizens. Rarely, Lombard municipalities sign agreements for the government of peri-urban covering their territories.

Finally, there is no laws or plans or consultation with the local authorities and potential stakeholders for the government of the urban and peri-urban macro-region that extends to Ravenna or agreements with the Emilia-Romagna Region.

5.2 Peri-urban governance in Emilia-Romagna

Emilia-Romagna has been working for years on several attempts to define peri-urban areas and govern them through urban-rural development plans. By approving the Law no.20/2000, this region was one of the first ones to define peri-urban areas and more specifically the “peri-urban agricultural areas”. These areas were defined as territories adjacent to urban centres or enclosed between urbanized and contiguous settlements. Here, the region could promote the realization of peri-urban parks (or agroparks) and mitigation areas, also by fostering the agritourism and organic farming techniques, and barriers to protect not-infrastructured areas. As such, farms could maintain their agricultural vocation and promote activities to supplement agricultural income (recreational and leisure); however, they are expected to increase the urban environmental quality, through the creation of ecological equipment and environmental services. Emilia-Romagna defined also “the agricultural areas of margin” that coincided with the agricultural areas adjacent to urban centres. Here, new agricultural constructions could be built; however, their realization should be contained to prevent contrasts with the prevailing residential function of the consolidated urban fabric and close to peri-urban agricultural areas.

With the same law, the region was one of the firsts to reform territorial governance as it reviewed the competences of local authorities in this issue in accordance with the principles of subsidiarity and coordination. Other innovative elements were the most challenging objectives (the reduction of land use, the protection of ecosystem services, the regeneration of urbanized areas and the defence of agricultural areas) and the measures for the prevention and mitigation of the effects of human activities on biodiversity, environment and climate (set of penalties and limits to further edification).

Recently, Emilia-Romagna has approved a new regional planning law, the Law no.24/2017, which repealed entirely the previous one, the Law no.20/2000. The new law is inspired by the same principles which are the basis of the previous one and specifically on subsidiarity and cooperation. As such, it delegates large competences to the municipalities and creates some collegial organisms, such as *Comitati urbanistici* (Town planning committee) with the specific tasks to coordinate and integrate advice from various public institutions (Region, provinces, metropolitan cities) on the subject of participation, environment and any other matter required by law. Moreover, the new law provides for the establishment of the Ufficio di Piano (a planning office), i.e., a technical-organizational structure with all essential capabilities to exercise urban planning functions (planning, landscape, environmental, legal and economic activities). Within this structure, the guarantor of communication and participation must be appointed. This professional figure verifies compliance with transparency, publicity and participation requirements and make effective some form of citizens’ consultation. The coordination roundtable set up by firms, associations, private citizens and public institutions continues to carry out its functions of support and accompaniment in matters of territorial governance, as before the entry into force of the new law.

The new law strives for the same objectives of the 2000 law. Among them, it places emphasis on the soil consumption reduction to achieve the target of zero balance land consumption by 2050, as set by the European Commission. As such, it admits that the soil consumed can be at most 3% of the urbanized area and leaves it to the region to implement measures to monitor consumption.

Unlike the previous law, the new one does not define peri-urban, but just the urbanized territory. Accordingly, municipalities are expected to delimit this space based on contiguity criteria, including connected built-up areas with a prevalent residential, productive and commercial destination and with infrastructures and public services. In this delimitation, municipalities may disregard rural areas, even those included among the adjacent urbanized areas and the scattered and discontinuous build-up areas located along the infrastructures. As no threshold or specific requirements to delimit urbanized territory are defined, municipalities are free to define the criteria as they find appropriate. This leads to a proliferation of different delimitation which makes it difficult to compare the size and characteristics of the various territories. The new law also provides for special protection for the rural areas and in particular that part where peri-urban agriculture is practiced because it recognizes its role in the environment and landscape preservation. Also, in this case, the region delegates the delimitation of the territory and the adoption of specific measures for its planning to the municipalities.

Municipalities execute all delegated prescriptions in the *Piano urbanistico generale* (General Urban Plan, PUG). With this instrument they execute the competence on the use and transformation of the territory, with particular regard to the urban reuse and regeneration processes. PUG also includes prescriptions for

architectural competitions and design participation, compensation measures and environmental and territorial protection.

With the entry into force of the new urban law, Emilia-Romagna needs to approve a new *Piano Territoriale Regionale* (Regional Territorial Plan, PTR). This document should include and coordinate prescriptions concerning landscape protection and local public transport provision in a single planning tool for the entire regional territory. As such, its drafting requires the adoption of a multidisciplinary approach for the territorial government, which in turn inspires the adaptation of the sectoral and provincial plans and the *Piano di sviluppo rurale* (Rural Development Programme, RDP) to the guidelines defined in the PTR. These guidelines include the measures to be implemented to protect the landscape, and specifically its environmental, cultural and social value; besides they promote the implementation of policies to ensure sustainable and inclusive economic and social development, in order to increase the competitiveness and resilience of the regional territorial system and safeguard the reproducibility of resources. For this reason, with the PTR, the Region defines the Regional Strategy for Sustainable Development.

In drafting the PTR, Emilia-Romagna promotes integration between all institutional levels of territorial government and multi-level governance through instruments of consultation and co-decision of territorial strategies.

This is done within the Inter-Institutional conference for the territorial integration, where institutions operating in the region participate in order to define together the guidelines for territorial governance.

The new PTR has not yet been adopted and it is not possible to determine whether it contains any definition of peri-urban areas or measures for its governance. The PTR in force until 2017 did not exclude new logistical settlements to support the infrastructure system and new urban polarities to encourage the decentralisation of certain functions, to capture their excellence or to reduce their costs. However, these new centres were expected to be the result of the regeneration of urban and peri-urban areas. No further land conversion were allowed. Specifically, for peri-urban areas, the old PTR promoted to requalify vacant spaces with diversified functions that are complementary to housing (e.g. healthiness and recreation). Important functions of peri-urban agriculture were recognized as controlling urban growth and soil management, as well as interconnecting with urban development. The methods for its promotion are then specified (green spaces, cultivated, wooded, equipped with gardens, vegetable gardens), but not where it is practiced.

No mention in the regional law and in PTR for the urban and peri-urban macro-region that extends beyond regional territory and covers part of the Lombardy.

6. Discussion

Lombardy and Emilia-Romagna have had an intense process of urbanization that first led to the conversion of large rural areas around the metropolitan areas and then around those of smaller urban centres, following the typical pattern already described by Champion. This process involved the two metropolitan areas and the system of small and medium-sized towns. As these centres are highly integrated with each other, urbanization has promoted the formation of two peri-urban multi-polarized continuum in both regions. Their configuration prevents the adoption of McGee's territorial classification to describe urban transformations, as they tend to merge together generating a large urban and peri-urban macro-region, from Varese to Rimini and Ravenna.

This urban and peri-urban process depends on demographic growth. Population moves towards the urban centres firstly and then beyond urban boundaries and close rural centres at impressive rate (almost half of the municipalities that grew more than 160% are in these regions). Part of population shifts going on smaller municipalities, or to the countryside which appears more urbanized. These displacements are ordered, and the population does not result sparsely distributed in all considered municipalities. This in turn implies high values of soil consumption, which grows more than the population in most of the considered municipalities. Urban and peri-urbanization processes go beyond the administrative boundaries. This makes difficult peri-urban governance as the relative planning might not be the exclusive competence of a single institution. Currently, in both regions, territory is governed through a top-down approach based on legislative and

planning prescriptions: both regions define the general legislative framework that in turn is translated into concrete measures at provincial and municipal level.

Legislative prescriptions include measures to govern all regional territory in its current configuration, to promote its reorganization, avoiding excessive and unregulated sprawl and soil consumption. Both regions do not define precisely peri-urban areas and promote the recovery of brownfield sites and the reduction of urban sprawl, through a system of incentives and penalties. Extending the analysis to the regulated contents, beyond general principles, one notes the importance of agriculture, not only of margin, as an activity capable of reducing the imbalances generated by urban expansion. Although limited to small areas, agriculture remains a critical activity, included in all documents and extolled as an activity capable of reducing pollution and safeguarding natural resources. For this reason, the areas in which it is practiced are planned, regulated and sometimes well defined. However, transformations are only allowed if well-defined circumstances exist. These are not so stringent because a sort of "fear" of stopping land consumption continues to exist everywhere, almost as if it meant limiting local growth and economic development. For this reason, the re-use of disused or unused land is more encouraged.

Lombardy and Emilia-Romagna delegate peri-urban delimitation to the provinces and municipalities assuming their importance in governing territorial transformations. This enables to delimit territory more accurately; however, it implies a proliferation of zoning methods hardly comparable. No significant experiences of interinstitutional cooperation emerge in peri-urban governance. As the peri-urban territory extends beyond administrative boundaries, its governance appears poorly effective also at this level of government and the coordination of the efforts of all near municipal institutions is crucial. The ongoing state decentralization has resulted in the emergence of several additional actors such as non-governmental associations, community-based organizations, welfare and environmental associations: all of them play a significant (and different) role in governing peri-urban areas. The institutional supremacy, in consequence of an opening towards civil society, is discussed as well as the role of mediator in the resolution of territorial conflicts.

The lack of any form of coordination between municipalities and other institutional entities have led to the impossibility to understand specifically what will happen in a given territory beyond the administrative dimension of individual municipalities and therefore the peri-urban areas outside them (Romano et al. 2018). The combination of these two effects (the lack of coordination and the proliferation of original prescriptions at municipal level) might cause some form of settlement disorganization that is crucial in territories like peri-urban ones with no specific vocation or included in specific plans. Coordination among all potential stakeholders is also the key to govern the urban and peri-urban macro-region between Lombardy and Emilia-Romagna; however, no attempt has been made to promote it.

7. Conclusions

The paper has addressed the peri-urban governance issue by comparing the implementation of governance measures in two regions, Lombardy and Emilia-Romagna.

One of the central tensions characterizing peri-urbanization processes is the misalignment between institutions and the growth of peri-urban areas across administrative borders, which have become difficult to clearly define. Different institutional frames are associated with different competences on peri-urban governance. This implies analysing which institutional actors at different governance scales hold, over time, different degrees of planning authority and competencies, how they are involved in the issuing and application of planning regulations and plans and what role they play in multi-scalar governance arrangements related to practices of land-use transformations.

The finding of the present paper emphasises that higher-level institutions, and specifically, the regions are required to coordinate and regulate local institutions in peri-urban governance. By comparing the two regions, one emerges that peri-urban originates from municipal practices and spread beyond administrative municipal level. This means that regions should define the general framework for planning regulations and plans at lowest institutional levels, as well as promoting supra-municipal practices for peri-urban management. This is likely to be achieved only when the challenges of peri-urban management and planning constraints on resources, capacity, and political priority, as well as administrative boundaries are overcome.

Findings of the present study also highlights the complexities characterising the regional action. Regions should operate in collaboration with other institutions and actors and problems of competences attributions or coordination may emerge. Difficulties are related also to the definition of the territory within regions should operate. Usually, they refer to the whole regional territory, sometimes adopting a urban or rural or regional approaches. This paper argues that planning of the peri-urban interface cannot simply be based on the extrapolation of planning approaches and tools applied in rural and urban areas. Conversely, it needs to be based on the construction of an approach that responds to the specific environment, social, economic and institutional aspects of the peri-urban interface. The definition of peri-urban areas is therefore not a tedious exercise, but necessary because it is the basis for the definition of correct territorial policies. Letting municipalities define peri-urban territories is correct and helps to perceive territorial differences; however, it makes it difficult to compare territories and to coordinate higher-level actions. Measure of urban equilibrium are numerous and appreciable, but they lose their effectiveness if the territorial scope in which they are to be implemented is not defined. Common guidelines about peri-urban delimitation defined at regional level would be needed.

Involvement of local institutions and population is a crucial aspect for an efficient peri-urban planning. All measures that encourage it should be enforced through the promotion of informal governmental arrangements, periodical meeting, and easy access to information. Probably, it could be also essential in the drafting of inter-municipal plan for peri-urban planning, which do not substitute the current acts, but integrate them with specific prescriptions for these territories. Finally, regions should collaborate to plan peri-urban macro-region that extends across their territories, adopting coordinate plan and participating to roundtables and common meetings.

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